

4.4.5 Waste Management

Approach

The following comments, concerns and questions are the result of the team's review of those portions of the 2006 Closure Project Baseline (CPB) Schedule we felt were critical to site closure as scheduled in 2006. We did not review all of the 2006 CPB Schedule assumptions, scope and sequence; we reviewed a representative set of the Work Authorization Documents (WADs) within several critical Project Baseline Descriptions (PBDs). The comments below are organized by (WADs) and Work Breakdown Structures (WBSs). The selected WADs were representative of the top 80% of the cost for WM.

The WADs reviewed in connection with the PBD 002 WM Project are:

- WAD 002 Sanitary Waste Project
- WAD 004 TRU/TRUM Project
- WAD 005 TRU/TRUM Construction Project
- WAD 006 Waste Disposal Project(non-TRU)
- WAD 007 Waste Treatment Project
- WAD 048 Liquid Waste Treatment Upgrades
- WAD 062 LLW/LLMW Storage Project

Basis & Assumption Issues

See Section 4.1 for comments regarding planning and assumptions. Also see Section 4.6 for additional Waste Management information.

Scope Issues

1. The current process for waste management and planning is accomplished through the Waste Generation, Inventory, and Shipping Forecast published by the Waste & Remediation Operations Group (Appendix C). This document is a compilation of waste forecasts produced by the Waste Generators, updated monthly, and published on a quarterly basis and provided to Waste Management. This Waste Generation, Inventory, and Shipping Forecast (WGISF) is the current WM planning and forecasting mechanism and is separate from the 2006 CPB Schedule. Hence the majority of the WM Project schedule activities within PBD 002 Waste Management Project have been incorporated as a LOE and do not appear to reflect interface relationships between the waste generation areas and the appropriate waste management as stated above. The WGISF Process appears to be the best approach at this time for the out years. However, for FY99 and FY00 there is sufficient information available from the Waste Generation groups for the integration of this WM information to be integrated into the 2006 CPB Schedule.

2. In response to the lack of WM integration logic, ER has created their own WM activities (that are not maintained by WM) for waste treatment and management to represent the interface to the WM effort. This presents several problems:
 - WM is not responsible for the status of these activities added by ER and therefore they may not reflect accurate WM status.
 - Since there is no interface logic to the actual WM activities, changes to these activities would not translate down to the ER activity forecasts.
 - The ER added activity Original Duration (for WM activities) calculations are not from WM and may not be in accordance with WM assumptions.
3. The K-H staff have stated that they perform monthly monitoring and quarterly forecast updates of resources to make adjustments in D&D and ER plans necessary to support closure. However these planning activities are not included in the 2006 CPB schedule D&D and ER activity forecasts. This subsequently impacts WM's ability to accurately forecast, schedule and integrate their activities within the 2006 CPB Schedule. K-H has stated that current waste generation forecasts are generally plus or minus 40% accuracy and as additional historical data becomes available the forecasting will improve.
4. The K-H Schedule Standard 17 Schedule Integration states the Expanded Management Summary Schedule (EMSS) all RFCP milestones shall be uniquely identified, and traceable between the EMSS and CPB Schedule as shown from the following excerpt:

“The Expanded Management Summary Schedule (EMSS) serves as the primary RFCP schedule integration tool ... The EMSS shall tie to the CPB ... All summary activities represented on the EMSS shall tie to the activity nodes in the CPB.”

A review of the 2006 CPB Schedule Milestones identified in the WAD reviewed have been verified to tie to the EMSS.

5. The work scope described in the PBD 002 for the for WADs listed within were reviewed with the WBS (WAD-let) activities to determine whether the PBD scope was accurately represented in the 2006 CPB Schedule.

Schedule Development Issues

WAD 002 – Sanitary Waste Project

The Sanitary Waste Project includes operation of the RFETS Sewage Treatment Plant (STP). Non-hazardous, non-radioactive, liquid waste are received at the STP; treated using activated sludge, tertiary clarification, sand filtration and UV light disinfection; and discharged to a stream.

1.1.04.01.06 219 – Cluster Landfill Closure (OU7)

1. This LOE work scope is described in the PBD as operations and maintenance activities at the OU-7 seep collection and treatment facility (i.e., passive aeration system). The work activities under this WBS include weekly inspections, sample collection and analysis, quarterly reporting and maintenance, modeling and analyses to support the update of the IM/IRA and conceptual design. These the 2006 CPB Schedule WBS activities are represented, as shown below:

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	2010 Early Finish	2010 Variance
002 PBD 002 - Waste Management Project							
002 WAD 002 - Sanitary Waste Project							
1.1.04.01.06 219 CLUSTER LANDFILL CLOSURE (OU7)							
A207CAP100	EVALUATE TOTAL WATER STORAGE CAPACITY OF	82	62	02OCT00	29JAN01		0
A2CP100110	PERFORM WATER BALANCE STUDY	62	62	30OCT00	29JAN01		0
A2CP100170	MODEL DIFFERENCES RMA & RFETS (SOIL	103	62	30JAN01	22JUN01		0
A2CP100120	DEMONSTRATE RFCA ATTACHMENT 10	141	63	30JAN01	16AUG01		0
A2CP100180	EVALUATE SOIL FROM ONSITE AND OFFSITE	39	62	25JUN01	17AUG01		0
A2CP100190	PERFORM MODELING WITH UNSAT-H (SOILS)	29	62	20AUG01	28SEP01		0
A2CP100010	Project Scoping & Conceptual Cap Design Prep	181	135	01OCT01	17JUN02		0
A2CP100000	Decision Document Preparation, Review & Approval	254	62	01OCT01	30SEP02		0
A2CP100090	OU-7 Landfill Decision Doc Approved by Agencies	0	62		30SEP02		0
A2CP100060	Procure Design & Build Subcontract	37	62	01OCT02	20NOV02		0
A2CP100080	OU-7 Landfill Cap Contract Award	0	62		20NOV02		0
A2CP100050	Title II/Title III Design	217	62	21NOV02	30SEP03		0
A2CP100140	Field Document Preparation	40	62	01OCT03	25NOV03		0
A2CP100130	Readiness Assess/Environ Readiness Evaluation	18	62	26NOV03	23DEC03		0
A2EAER5000	OU-7 CAD/ROD Support	255	499	12DEC03	13DEC04		0
A2CP100070	OU-7 Cap Construction	197	62	24DEC03	30SEP04		0
A2EMILE562	Compl INFLFO Cluster (Sanitary Landfill) Cap	0	62		30SEP04	30SEP05	254
A2CP100150	Prepare Closeout Report	20	499	01OCT04	28OCT04		0
A2EAER4000	OU-7 Landfill Cap Long Term Maint. & Monitoring	254	62	01OCT04	30SEP05	29SEP06	253
A2CP100160	OU-7 Landfill Closeout Rpt Submitted to Agencies	0	499		28OCT04		0
A2EMILE621	OU-7 ROD Prepared	0	499		13DEC04		0
A2EAER4005	OU-7 Landfill Cap Long Term Maint. & Monitoring	253	62	03OCT05	29SEP06	28SEP07	253

2. As shown above, the majority of activities representing this WBS appear to have been added to the 2006 CPB Schedule since the 2010 CPB Schedule development. However, the Milestones for Complete INFLFO Cluster, OU-7 Landfill Cap Maintenance for FY05 and FY06 are forecast to complete approximately one year earlier than the 2010 CPB Schedule. The basis for the acceleration is the result of a decrease in duration for cap construction, a shortened period of planning, and a greater level of work scope detail being defined leading up to the predecessor.
3. When the predecessor and successor logic was reviewed for the WBS sequence of activities, the 2006 CPB Schedule activities were found to be logically and correctly tied with each other. However, the first driving activity, A2O7CAP100 Evaluate Total Water Storage Capacity, of the sequence was found to be tied to a date constrained Milestone (as opposed to a related waste generation activity), which does not have a predecessor activity.
4. Activity A2CP100000 “Decision Document Preparation, Review and Approval” combines responsibilities of different parties. Industry standard schedule techniques separate activities by scope and responsibilities. The regulatory agencies are also assumed to adhere to document review schedules as described in RFCA and it is important from a schedule impact and delay allocation perspective to separate this effort. In accordance with the K-H Standard 10 Scheduling, we recommend that each responsibility have its own 2006 CPB Schedule activity.
5. The last activity in this WBS (A2EAER4005) is properly tied into the WAD 002 and the PBD 002 completion Milestones as shown below.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	2006 Finish		
						FY06	FY07
A2EAER4005	OU-7 Landfill Cap Long Term Maint. & Monitoring	253	62	03OCT05	29SEP06		
A2ENDWPD02	Complete WPD 002 - Sanitary Waste Project	0	62		29SEP06		
A6ENDPBD02	Complete PBD 002 - Waste Management Project	0	61		02OCT06		
ESMMILE099	Site Closure Complete	0	0		29DEC06		

1.1.04.01.07 – Operate and Maintain Existing Landfill

1. This LOE scope is described in the PBD as collection, transportation and disposal of RFETS-generated solid, sanitary waste to offsite commercial landfill. Additionally, it is described as maintaining the existing vegetative soil cover, visual inspections, and groundwater monitoring. The activity process and sequence is repeated for each fiscal year. These LOE activities for FY99 through FY06 are adequately represented in the 2006 CPB Schedule as shown below.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	FY99	FY00
002 PBD 002 - Waste Management Project							
002 WAD 002 - Sanitary Waste Project							
1.1.04.01.07 OPERATE AND MAINTAIN EXISTING LANDFILL							
A2EA171020	Existing Landfill Maintenance & Monitoring FY99	254	62	01OCT98	30SEP99		
A2EA172020	Inspections & Program Mgmt Sanitary Waste, FY99	254	62	01OCT98	30SEP99		
A2EA172025	Offsite Sanitary Waste Disposal Subcontract FY99	254	62	01OCT98	30SEP99		
A2EA172040	Inspections & Program Mgmt Sanitary Waste, FY00	254	62	01OCT99	29SEP00		
A2EA172100	Offsite Sanitary Waste Disposal Subcontract FY00	254	62	01OCT99	29SEP00		
A2EA172105	Existing Landfill Maintenance & Monitoring FY00	254	62	01OCT99	29SEP00		

2. As indicated below the majority of activities representing this WBS reflect zero variance from the 2010 CPB Schedule forecasts. However, the Milestone for Complete Sanitary Waste Shipments is forecast approximately three years earlier than the 2010 CPB Schedule forecast. The basis for the acceleration is the result of a refined effort to complete offsite waste shipments three years early.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	2010 Early Finish	2010 Variance
002 PBD 002 - Waste Management Project							
002 WAD 002 - Sanitary Waste Project							
1.1.04.01.07 OPERATE AND MAINTAIN EXISTING LANDFILL							
A2EA171020	Existing Landfill Maintenance & Monitoring FY99	254	62	01OCT98	30SEP99	30SEP99	0
A2EA172020	Inspections & Program Mgmt Sanitary Waste, FY99	254	62	01OCT98	30SEP99	30SEP99	0
A2EA172025	Offsite Sanitary Waste Disposal Subcontract FY99	254	62	01OCT98	30SEP99	30SEP99	0
A2EA172040	Inspections & Program Mgmt Sanitary Waste, FY00	254	62	01OCT99	29SEP00	29SEP00	0
A2EA172100	Offsite Sanitary Waste Disposal Subcontract FY00	254	62	01OCT99	29SEP00	29SEP00	0
A2EA172105	Existing Landfill Maintenance & Monitoring FY00	254	62	01OCT99	29SEP00	29SEP00	0
A2EA172045	Inspections & Program Mgmt Sanitary Waste, FY01	253	62	02OCT00	28SEP01	28SEP01	0
A2EA172105	Offsite Sanitary Waste Disposal Subcontract FY01	253	62	02OCT00	28SEP01	28SEP01	0
A2EA172000	Existing Landfill Maintenance & Monitoring FY01	253	62	02OCT00	28SEP01	28SEP01	0
A2EA172050	Inspections & Program Mgmt Waste, FY02	254	62	01OCT01	30SEP02	30SEP02	0
A2EA172110	Offsite Sanitary Waste Disposal Subcontract FY02	254	62	01OCT01	30SEP02	30SEP02	0
A2EA172055	Existing Landfill Maintenance & Monitoring FY02	254	62	01OCT01	30SEP02	30SEP02	0
A2EA172055	Inspections & Program Mgmt Sanitary Waste, FY03	254	62	01OCT02	30SEP03	30SEP03	0
A2EA172115	Offsite Sanitary Waste Disposal Subcontract FY03	254	62	01OCT02	30SEP03	30SEP03	0
A2EA172060	Existing Landfill Maintenance & Monitoring FY03	254	62	01OCT02	30SEP03	30SEP03	0
A2EA172060	Inspections & Program Mgmt Sanitary Waste, FY04	255	62	01OCT03	30SEP04	30SEP04	0
A2EA172120	Offsite Sanitary Waste Disposal Subcontract FY04	255	62	01OCT03	30SEP04	30SEP04	0
A2EA172065	Inspections & Program Mgmt Sanitary Waste, FY05	254	62	01OCT04	30SEP05	30SEP05	0
A2EA172125	Offsite Sanitary Waste Disposal Subcontract FY05	254	62	01OCT04	30SEP05	30SEP05	0
A2EA172070	Inspections & Program Mgmt Sanitary Waste, FY06	253	62	03OCT05	29SEP06	29SEP06	0
A2EA172130	Offsite Sanitary Waste Disposal Subcontract FY06	253	62	03OCT05	29SEP06	29SEP06	0
A2EMILE543	Complete Sanitary Waste Shipments	0	62		29SEP06	30SEP09	762
A2ENDWPD02	Complete WPD 002 - Sanitary Waste Project	0	62		29SEP06		0

3. The last activity for this WBS is logically and correctly tied to the WAD and PBD completion Milestones as shown below.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	2006 Finish	FY06	FY07
A2E4ER4005	OU-7 Landfill Cap Long Term Maint. & Monitoring	253	62	03OCT05	29SEP06		
A2ENDWPD02	Complete WPD 002 - Sanitary Waste Project	0	62		29SEP06		
A6ENDPBD02	Complete PBD 002 - Waste Management Project	0	61		02OCT06		
E5MILE099	Site Closure Complete	0	0		29DEC06		

WAD 004 – TRU/TRM Waste Projects

Under this WAD, Legacy TRU/TRM waste will require continued onsite storage pending certification for offsite shipment. Additionally, newly generated TRU/TRM will require onsite storage to the extent it can not be shipped for disposal at WIPP in the same year it is generated. To accommodate this need, WAD 004 includes the continued operation of the existing TRU/TRM storage/staging facilities across the site. Specific storage/staging facilities are included in Buildings B664, 776, 440, 569, 991 and possibly other facilities as they are modified for storage.

WAD 004 also covers operations and maintenance for new facilities that will be required for storage of TRU/TRM pending shipment to WIPP. Based on current inventory and projected generation, additional storage capacity will be required by the end of FY00 (independent of WIPP opening). It is anticipated that such capacity will be acquired through renovation of existing facilities and operations will be planned accordingly.

1.1.04.03.01.02 – B664 TRU/TRM Storage/Staging Operations

1. The scope for this element includes a variety of activities required to maintain safe and compliant storage of TRU/TRM waste in B664. Typical activities include routine functions associated with operations management, operations of testing systems, maintenance of loading systems, performance checks, training, and other environment, safety and health activities. As indicated below, the entire work scope for B664 TRU/TRM Storage/Staging Operations appears to be adequately represented in the 2006 CPB Schedule for this WBS.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	2010 Early Finish	2010 Variance
002 PBD 002 - Waste Management Project							
004 WAD 004 - TRU / TRM Project							
1.1.04.03.01.02 B664 TRU/TRM STORAGE/STAGING OPS							
A4EC121020	B664 TRU/TRM Storage Operations FY99	254	268	01OCT98	30SEP99	30SEP99	0
A4EC121040	B664 TRU/TRM Storage Operations FY00	254	268	01OCT99	29SEP00	29SEP00	0
A4EC121045	B664 TRU/TRM Storage Operations FY01	253	268	02OCT00	28SEP01	28SEP01	0
A4EC121050	B664 TRU/TRM Storage Operations FY02	254	268	01OCT01	30SEP02	30SEP02	0
A4EC121055	B664 TRU/TRM Storage Operations FY03	254	268	01OCT02	30SEP03	30SEP03	0
A4EC121060	B664 TRU/TRM Storage Operations FY04	255	268	01OCT03	30SEP04	30SEP04	0
A4EMILE481	Complete B664 Waste Operations	0	268		30SEP04	30SEP08	1,015

2. As shown above, the 2006 CPB Schedule activities representing this WBS reflect no completion variances when compared to the 2010 CPB Schedule. However, the finish Milestone A4EMILE481 reflects a four-year acceleration from the 2010 CPB Schedule forecast. A review of the 2010 CPB schedule reflects a change in scope and approach as the basis for the acceleration.
3. Activity A4EC121020, B664 TRU/TRM Storage Operations FY99, has only one predecessor activity, A4BEGWPD004 Start WPD 004 Milestone, which is driven by a FY99 Start Milestone date constraint. With a review of the scope and understanding of the WM process, the observation can be made that the B664 TRU/TRM Storage Operations is dependent upon the Building B664 waste generation activities that precede the use of this building. We recommend the contractor review of the driving activities and current scope for A4EC121020, B664 TRU/TRM Storage Operations FY99 and FY00 and provide the necessary activities and logic relationships to reflect the current FY and FY+1 efforts.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	2010 Early Finish	2010 Variance	FY04
002 PBD 002 - Waste Management Project								
004 WAD 004 - TRU / TRUM Project								
1.1.04.03.01.02 B664 TRU/TRM STORAGE/STAGING OPS								
A4EC121020	B664 TRU/TRM Storage Operations FY99	254	268	01OCT98	30SEP99	30SEP99	0	
A4EC121040	B664 TRU/TRM Storage Operations FY00	254	268	01OCT99	29SEP00	29SEP00	0	
A4EC121045	B664 TRU/TRM Storage Operations FY01	253	268	02OCT00	28SEP01	28SEP01	0	
A4EC121050	B664 TRU/TRM Storage Operations FY02	254	268	01OCT01	30SEP02	30SEP02	0	
A4EC121055	B664 TRU/TRM Storage Operations FY03	254	268	01OCT02	30SEP03	30SEP03	0	
A4EC121060	B664 TRU/TRM Storage Operations FY04	255	268	01OCT03	30SEP04	30SEP04	0	
A4EMILE481	Complete B664 Waste Operations	0	268		30SEP04	30SEP08	1,015	
G700066420	Deactivation - Cluster 664	254	268	02OCT03	30SEP04	26DEC08	1,075	

4. As indicated in the figure above, a review of the predecessor/successor relationships finds that Storage Operations in B664 for FY04 are scheduled concurrently with B664 Deactivation in FY04. There is a concern as to the reasonableness of the concurrent (as opposed to sequential) scheduling of Bldg 664 deactivation and waste storage operation activities. We recommend that K-H ensure that this sequencing is reasonable and is in accordance with DOE assumptions.

1.1.04.03.01.03 – B776 TRU/TRM Storage/Staging Operations

1. The scope for this WBS includes a variety of activities to maintain safe and compliant storage in B776. Typical activities include operations management, operation and management of gas generation test systems, operation and maintenance of repack and visual examination operations, building personnel training/qualifications, compliance reviews, surveillance's, and other project management tasks. We anticipate that TRU/TRM operations in B776 will be eliminated by end of FY99 and all operations transferred to B440 or converted to mobile systems for characterization. The work scope for B776 TRU/TRM Storage/Staging Operations is adequately represented in the 2006 CPB Schedule for this WBS.

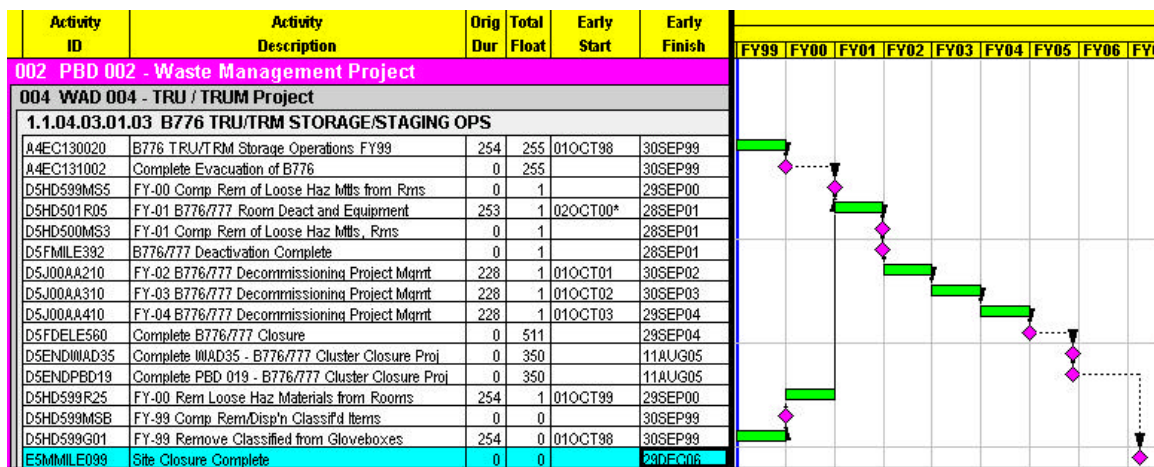
2. The activities adequately representing this WBS reflected no completion variances when compared to the 2010 CPB Schedule. However, the completion Milestone for B776 Evacuation is forecast approximately one year earlier than the 2010 CPB Schedule forecast as shown below. The basis for the acceleration is a result of deletion of B776 Storage Operations for FY00.
3. Activity A4EC131002, Complete Evacuation of B776, is forecast to complete September 30,

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	2010 Early Finish	2010 Variance	
002 PBD 002 - Waste Management Project								
004 WAD 004 - TRU / TRUM Project								
1.1.04.03.01.03 B776 TRU/TRM STORAGE/STAGING OPS								
A4EC130020	B776 TRU/TRM Storage Operations FY99	254	255	01OCT98	30SEP99	30SEP99	0	
A4EC131002	Complete Evacuation of B776	0	255		30SEP99	29SEP00	254	

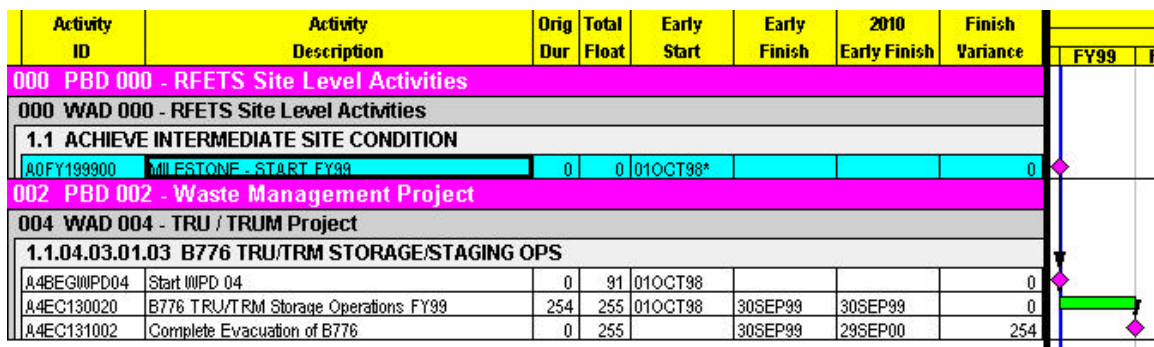
1999. However, the figure below shows Building 776 Deactivation (PBD 019) and completion of Removal of Loose Hazardous Materials from the Rooms ongoing through FY00. There is a concern as to the reasonableness of the concurrent (as opposed to sequential) scheduling of Building 776/777 deactivation and waste storage operation activities. We recommend that K-H ensure that this sequencing is reasonable and is in accordance with DOE assumptions.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	2010 Early Finish	2010 Variance		FY99	FY00
02 PBD 002 - Waste Management Project										
004 WAD 004 - TRU / TRUM Project										
1.1.04.03.01.03 B776 TRU/TRM STORAGE/STAGING OPS										
A4EC130020	B776 TRU/TRM Storage Operations FY99	254	255	01OCT98	30SEP99	30SEP99	0			
A4EC131002	Complete Evacuation of B776	0	255		30SEP99	29SEP00	254			
19 PBD 019 - Building 776 / 777 Cluster Closure										
035 WAD 035 - 776 / 777 Cluster Project										
1.1.06.12.01 776/777 CLUSTER LANDLORD FUNCTIONS										
D5BEGMIPD35	Start MIPD 35	0	0	01OCT98			0			
1.1.06.12.03.02 776/777 CLUSTER DEACT PLAN AND PROJ MGMT										
D5HD299P00	FY99 B776 Deact Planning and Project Management	254	0	01OCT98	30SEP99	30SEP99	0			
1.1.06.12.03.05 776/777 CLUSTER DEACT INITIAL PHY DEACT										
D5HD599G01	FY-99 Remove Classified from Gloveboxes	254	0	01OCT98	30SEP99	30SEP99	0			
D5HD599R10	FY-99 Remove Classified from Rooms	191	0	04JAN99	30SEP99	30SEP99	0			
D5HD599MSB	FY-99 Comp Rem/Disp'n Classif'd Items	0	0		30SEP99	30SEP99	0			
D5HD599R25	FY-00 Rem Loose Haz Materials from Rooms	254	1	01OCT99	29SEP00	29SEP00	0			
D5HD599MS5	FY-00 Comp Rem of Loose Haz Mtls from Rms	0	1		29SEP00	29SEP00	0			

4. The PBD describes the transfer of TRU/TRM operations in B776 by end of FY99 to B440 or to mobile systems for characterization. A review of the predecessor/successor schedule logic does not reflect this transfer of operations in the 2006 CPB Schedule. We recommend that K-H identify this transfer of operations in the 2006 CPB Schedule or make the necessary logic revisions/additions. The figure below depicts the successor relationships following B776 Storage and Staging that show relationships to the D&D of B776. We note that the Cluster Closure project for B776, Demolition of B776/777, and the Closure Cap for the 700 Area are on the 2006 CPB Schedule Critical Path but the B776/777 Storage and Staging Operations are not on the critical path. We recommend that K-H explain this issue.



5. The figure below depicts the predecessor relationships for the B776 Storage and Staging operations. In the 2006 CPB Schedule, it appears that the B776 Storage and Staging Operations are independent (i.e. no logic links) of B776 Deactivation and Decommissioning activities. Although Storage and Staging Operations are a LOE activity, it seems reasonable that these activities for the current FY and FY+1 could be integrated with the appropriate waste generation activities that will be utilizing B776 for storage based on the detailed information available at this time. There is a concern that if the durations are extended or requirements change in the Deactivation or Decommissioning areas, there are no logic relationships in 2006 CPB Schedule to the Storage and Staging Operations to reflect the impacts. This shortfall will effect the 2006 CPB Schedule's forecasting capabilities. We recommend that K-H review the relationships between Storage and Staging Operations and Waste Generation activities and make the necessary 2006 CPB Schedule modifications to the appropriate sequencing is reflected.



1.1.04.03.01.06 – B991 TRU/TRM Storage Operations

1. The scope of work for this element is to provide resources necessary to maintain B991 operations (TRU storage and staging) to allow for temporary storage within the Protected Area pending completion of transfer to B664 for shipment to WIPP. Typical activities include operations management, Training/Qualification, Procedure development, container movements, routine waste storage inspections, and other project management activities. Additionally, B991 serves as a location for classified TRU storage. B991 will house a portable headspace gas sampling and analysis unit to replace capacity currently in B776. As shown below the 2006 CPB Schedule adequately represents this WBS effort.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	2010 Early Finish	2010 Variance
002 PBD 002 - Waste Management Project							
004 WAD 004 - TRU / TRUM Project							
1.1.04.03.01.06 B991 TRU/TRM STORAGE OPERATIONS							
A4EC160020	B991 TRU/TRM Storage Operations FY99	254	138	01OCT98	30SEP99	30SEP99	0
A4EC161000	B991 TRU/TRM Storage Operations FY00	254	138	01OCT99	29SEP00	29SEP00	0
A4EC161005	B991 TRU/TRM Storage Operations FY01	253	138	02OCT00	28SEP01	28SEP01	0
A4EC161010	B991 TRU/TRM Storage Operations FY02	254	138	01OCT01	30SEP02	30SEP02	0
A4EC161020	B991 TRU/TRM Storage Operations FY03	254	138	01OCT02	30SEP03		0
A4EMILE496	Complete B991 Storage of TRU Waste	0	138		30SEP03	30SEP02	-254

2. The activities representing this WBS reflected zero completion variances when compared to the 2010 CPB Schedule as shown above. However, the B991 Storage of TRU Waste completion Milestone indicates slip of approximately one year from the 2010 CPB Schedule. The basis for the slip appears to be a result of WM extending the use of B991 through FY03.
3. In the 2006 CPB Schedule, it appears that the B991 Storage and Staging Operations are independent (i.e. no logic links) of B991 Decommissioning activities. Although Storage and Staging Operations are a LOE activity, it seems reasonable that these activities for the current FY and FY+1 could be integrated with the appropriate waste generation activities that will be utilizing B991 for storage based on the detailed information available at this time. There is a concern that if the durations are extended or requirements change in the Deactivation or Decommissioning areas, there are no logic relationships in 2006 CPB Schedule to the Storage and Staging Operations to reflect the impacts. This shortfall will effect the 2006 CPB Schedule's forecasting capabilities. We recommend that K-H review the relationships between Storage and Staging Operations and Waste Generation activities and make the necessary 2006 CPB Schedule modifications to the appropriate sequencing is reflected.
4. As indicated below, Storage Operations in B991 for FY03 are concurrently scheduled with Deactivation of B991 in FY03. There is a concern as to the reasonableness of the concurrent (as opposed to sequential) scheduling of Building 991deactivation and waste storage operation activities. We recommend that K-H ensure that this sequencing is reasonable and is in accordance with DOE assumptions.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	FY99	FY00	FY01	FY02	FY03
000 PBD 000 - RFETS Site Level Activities										
000 WAD 000 - RFETS Site Level Activities										
1.1 ACHIEVE INTERMEDIATE SITE CONDITION										
A0FY19900	MILESTONE - START FY99	0	0	01OCT98*						
002 PBD 002 - Waste Management Project										
004 WAD 004 - TRU / TRUM Project										
1.1.04.03.01.06 B991 TRU/TRM STORAGE OPERATIONS										
A4BEGWPD04	Start WPD 04	0	91	01OCT98						
A4EC160020	B991 TRU/TRM Storage Operations FY99	254	138	01OCT98	30SEP99					
A4EC161000	B991 TRU/TRM Storage Operations FY00	254	138	01OCT99	29SEP00					
A4EC161005	B991 TRU/TRM Storage Operations FY01	253	138	02OCT00	28SEP01					
A4EC161010	B991 TRU/TRM Storage Operations FY02	254	138	01OCT01	30SEP02					
A4EC161020	B991 TRU/TRM Storage Operations FY03	254	138	01OCT02	30SEP03					
A4EMILE496	Complete B991 Storage of TRU Waste	0	138		30SEP03					
021 PBD 021 - Building 991 Cluster Closure Project										
037 WAD 037 - 991 Cluster Project										
1.1.06.23.03.01 991 CLUSTER DEACTIVATION CHARACTERIZATION										
D700099110	Deactivation - Cluster 991	254	138	01OCT02	30SEP03					

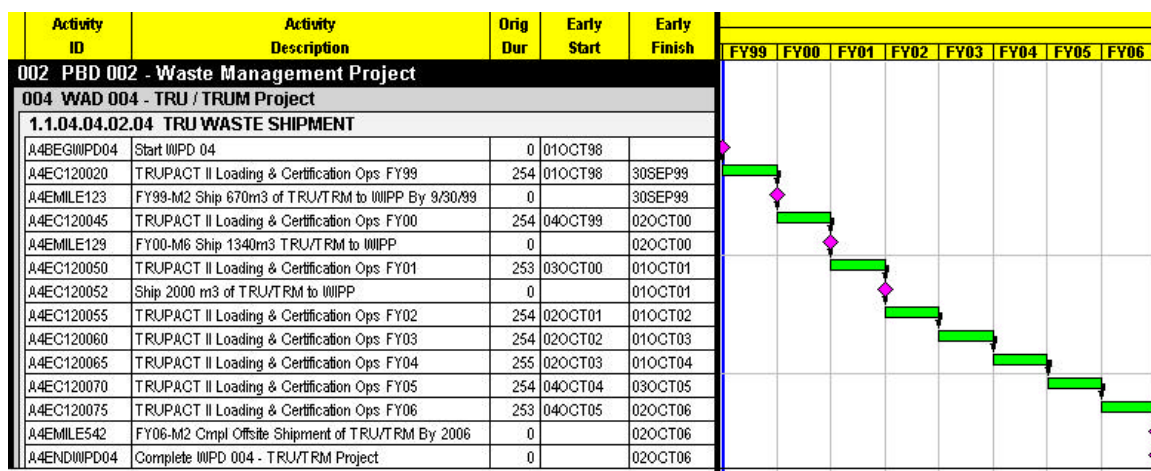
5. The PBD describes the transfer of B991 portable headspace gas sampling and analysis unit to replace capacity currently in B776. Additionally, the PBD states there will be a transfer of the B991 TRU Storage and Staging to B664. A review of the 2006 CPB Schedule logic relationships disclosed that the transfer of operations between buildings are not represented.

1.1.04.03.01.08 – TRU/TRM Waste Projects

- The scope of this element includes development and implementation of special projects related to TRU/TRM waste management, characterization, treatment, transportation, and/or disposal. Specifically, this covers: project controls, planning & scheduling, budget monitoring and performance reporting, program QA and maintenance, program document control and program safety control and maintenance. A review of the 2006 CPB Schedule disclosed that the WBS activities are adequately described and are logically related within this LOE. However, these TRU/TRM waste management activities have no integration links with waste generation sources.

1.1.04.04.02.04 – TRU Waste Shipment.

1. The scope of this element includes certification, loading, and shipment of previously characterized drums of TRU to WIPP and/or newly generated residue wastes. Specific activities consist of transfer and receipt of pre certified containers from existing storage facilities to B664 for loading, preparation (labeling, marking, inspection, certification) of drums for loading, load management tasks, and shipment preparation. The figure below shows that the WBS activities as described in the PBD are adequately described in the 2006 CPB Schedule and are logically related within this LOE. However, this review finds that the TRU/TRM waste shipment activities have no integration links with waste management or waste generation sources.



2. The completion of TRU Waste Shipment is correctly tied into the completion Milestones for Waste Management and Site Closure.

WAD 005 – TRU/TRM Construction Project

This project consists of design and construction activities associated with the Building 460 Conversion to Storage Project, the Building 440 Characterization and Shipping Project and a portable TRU Pact II Shipping and Characterization Facility. We anticipate that all remaining storage capacity for TRU/TRM will be filled by 3Q FY99. Arrangements have been scheduled to store waste temporarily in Tents 2 and 12 on the 750 Pad and to store TRU/TRM more permanently in newly created storage areas within Building B440. This building is currently planned to be completely utilized by 3Q FY00. At that time, assuming WIPP has not opened, the Building 460 Conversion to Storage Project must be operational.

1.1.04.03.02.02 – Dev and Impl New TRM Waste Storage/Staging Facilities

1. The scope of this element for FY99 through FY01 includes renovation of Building 440 to allow storage of TRU/TRM waste, construction of a TRU/TRM Repackaging Facility inside Building 440, Building 460 Conversion Project design and construction, and installation of a portable TRU Part II shipping station at a location that is to be determined. The activities representing this WBS appear to be accurately and logically reflected in the 2006 CPB Schedule.
2. The 2006 CPB Schedule activities representing this WBS reflected zero variances when compared to the 2010 CPB Schedule dates. The only exception found was the Milestone A5EC432160, Achieve Beneficial Occupancy for B440 Staging Module. This milestone has been accelerated by approximately 17 months as shown below. The basis for the acceleration is the removal of the B440 Shipping Module Construction scope as the predecessor effort for this milestone.

Activity ID	Activity Description	Orig Dur	Total Float	Early Start	Early Finish	2010 Finish	Finish Variance	
002 PBD 002 - Waste Management Project								
005 WAD 005 - TRU / TRUM Construction Project								
1.1.04.03.02.02 DEV AND IMPL NEW TRM WSTE STOR/STAG FAC								
T44 B440 New Storage Areas								
A5BEGWPD05	Start WPD 05	0	18	01OCT98			0	
A5EC432710	B440 Repack Module FY98 Change Notices	41	324	01OCT98	30NOV98	30NOV98	0	
A5EC437000	B440 New Storage Areas	123	0	11NOV98*	06MAY99	06MAY99	0	
A5EC432160	Achieve Beneficial Occ for B440 Staging Module	0	675		06MAY99	29SEP00	512	
A5ECPM0202	B440 Storage Upgrades Complete	0	0		06MAY99*	06MAY99*	0	

3. We note that the following activities within WAD 031 do not appear to meet K-H's Standard 10 Scheduling requirement:

A. Activity Durations/Level of Detail. Current FY activities and FY+1 activities will generally be two working weeks to three months in duration, except for procurement, regulatory actions, or level-of-effort activities, which do not have intermediate points for performance measurement. Longer term durations for true level-of-effort activities are permissible. Activities scheduled from FY+2 through completion will have durations reflecting the level of scope development.

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	
002 PBD 002 - Waste Management Project					
005 WAD 005 - TRU / TRUM Construction Project					
1.1.04.03.02.02 DEV AND IMPL NEW TRM WSTE STOR/STAG FAC					
A5EC437200	Modify B460 for TRU Waste Storage	191	01OCT99*	30JUN00	
A5EC437260	Port Ship System Construction	82	30DEC99	24APR00	

This creates a concern for the schedule accuracy based on the level of detail as reflected by the activity durations. We recommend that the activities be expanded and reflect the detail as required by K-H's Scheduling Standard 10.

WAD 006 – Waste Disposal Project (Non-TRU)

1. The Waste Disposal Project consists of activities that prepare, stage, load, transport, treat and dispose of low level, low level mixed, hazardous and non-radioactive waste types including waste chemicals.
2. The current process for management of these wastes is accomplished through the Waste Generation, Inventory, and Shipping Forecast published by the Waste & Remediation Operations Group (Appendix C). This document is a compilation of waste forecasts produced by the Waste Generators and provided to Waste Management. The document tracks on a monthly, and quarterly basis, estimates for waste volume, waste type and other necessary information. This is the current planning and forecasting mechanism that is utilized by Waste Management for determining Storage, Staging and Shipping forecasts. This is an independent effort from the 2006 CPB Schedule planning efforts and at this time is not integrated

1.1.04.04.01.02 – Waste Certification and Oversight

1. The key activities described in the PBD for this LOE work scope include verifications and training for radiation counts and NDA results, waste container data, and container integrity to name a few. Monthly reporting, periodic audits and other services are provided under this WBS. The work scope described in the PBD for WAD 006 – Waste Disposal Project (Non-TRU) was reviewed with the WBS activities to assure the PBD scope was accurately represented in the 2006 CPB Schedule. The entire work scopes appears to be adequately represented in the 2006 CPB Schedule for this WAD.
2. The activities representing this WBS reflected no finish variances when compared with the 2010 CPB.

1.1.04.04.02.01 – LLMW Shipment

1. The activities associated with this WBS are LOE providing the management and infrastructure to profile LLMW streams, assure WEMS entries, identify loads of shipments, validate containers, decant and add absorbent as necessary, verifications and compliance with DOT standards. The LOE activities as described in the PBD for this WBS are adequately incorporated into the 2006

CPB Schedule, as Package Certification LLMW for Disposal and Certify Shipment LLMW for Disposal.

1.1.04.04.02.02 – LLW Shipment

1. The activities associated with this WBS are LOE providing the management and infrastructure to profile LLW streams, assure WEMS entries, identify loads of shipments, validate containers, decant and add absorbent as necessary, verifications and compliance with DOT standards. The activities as described in the PBD for this WBS appear to be adequately incorporated into the 2006 CPB Schedule and are logically related within this LOE. However, these LLW shipment activities have no integration links with waste management or waste generation sources.

1.1.04.04.04.03 – Chemical Disposition and Disposal Project

1. The Waste Chemical Program is intended to provide a one-time removal of rad and non-rad waste chemicals for on site facilities. These activities as described in the PBD for this WBS appear to be adequately incorporated into the 2006 CPB Schedule and are logically related within this LOE. However, these disposition activities have no integration links with waste management or waste generation sources. We recommend the contractor provide the integration links in the 2006 CPB Schedule.

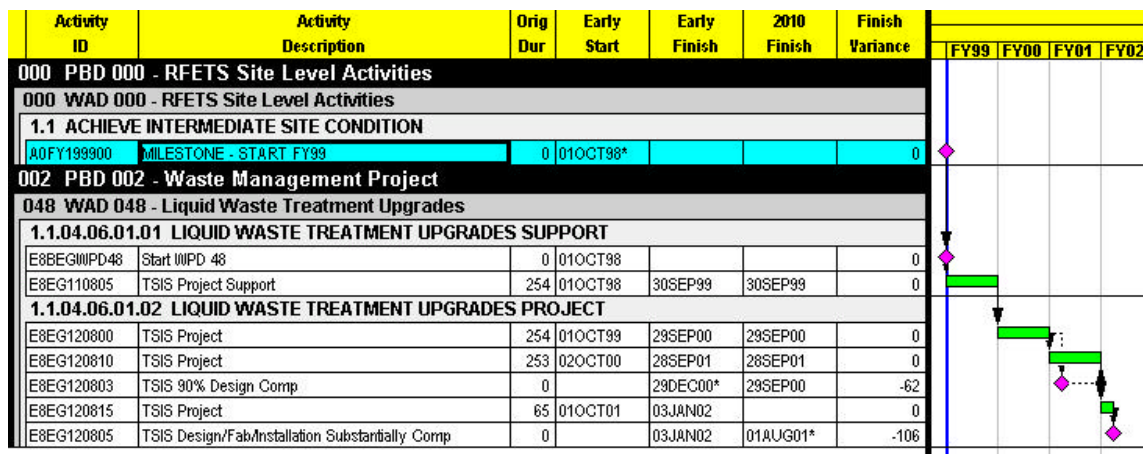
WAD 048 – Liquid Waste Treatment Upgrades

The Liquid Waste Treatment Upgrades Project consists of design and construction activities to provide new treatment capability for Site process waste water residuals.

1.1.04.06.01.02 – Liquid Waste Treatment Upgrades Project

1. The scope of work provides all design, construction, and start-up effort for operating, alternate or upgraded systems for radioactively contaminated process waste water until Site Closure is accomplished. The project will be completed in FY02; the operating systems will be covered by WAD 007, Waste Treatment. This project includes the Temporary Sludge Immobilization System (TSIS). A sludge immobilization system will be provided for treatment of the following waste streams:
 - a. Existing Low Level (LLW) and Transuranic (TRU) waste sludge stored in B374 and B774,
 - b. Backlog of LLW vacuum filter sludge drums stored in B964, and
 - c. Miscellaneous sludge generated during deactivation and closure.

The TSIS will be designed and constructed under a design build subcontract and will be installed onsite at a location which will allow efficient transfer of sludge for stabilization. The figure below shows the 2006 CPB Schedule activities representing this WBS effort.



- We note that Activities E8EG120800, E8EG120810, E8EG120815 "TSIS Project" represent the construction and start up of the TSIS project do not appear to meet K-H's Standard 10 Scheduling requirement:

A. Activity Durations/Level of Detail. Current FY activities and FY+1 activities will generally be two working weeks to three months in duration, except for procurement, regulatory actions, or level-of-effort activities, which do not have intermediate points for performance measurement. Longer term durations for true level-of-effort activities are permissible. Activities scheduled from FY+2 through completion will have durations reflecting the level of scope development.

This creates a concern for the schedule accuracy based on the level of detail as reflected by the activity durations. We recommend that the activities for TSIS Project be expanded to include the construction of the TSIS Project and reflect the detail as required by K-H's Scheduling Standard 10.

WAD 062 – LLW/LLMW Storage Project

This element provides the tasks related to management of the Site's LLW inventories. The activities as described in the PBD for this WBS appear to be adequately incorporated into the 2006 CPB Schedule and are logically related within this LOE. However, these activities have no integration links with waste management or waste generation sources.

1.1.04.02.01.01 – Operate and Maintain Site LLW Storage Facility

This element provides the tasks related to management of the Site's LLW inventories. Key activities within this WBS element involve receipt of LLW containers, field verification and maintenance of WEMS database, safety surveillances, quarterly radiological control surveys. Waste from B964 will be removed by September 30, 2001.

Cost & Resource Loading Issues

We performed a verification analysis of the budgeted costs found in the BEST and Primavera P3 schedule systems which are part of the basis for the 2006 Closure Plan. The results of this analysis indicate a match between each system's loaded costs and provides a good level of confidence that a true electronic link exists between the systems.

Further in depth cost and resource analysis can be found in section 4.6.

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